

NASA Observes Hale-Bopp

As the orbit of Comet Hale-Bopp approached the Sun in late March, NASA and agency-supported scientists studied the large and bright comet using sounding rockets, spacecraft and ground-based observations. Using the Hubble Space Telescope, Hale-Bopp's nucleus was measured at roughly three to four times larger than that of comet Halley (six miles in diameter), making it one of the largest comets ever observed. Researchers studied Hale-Bopp to better understand comets, primitive bodies of loosely-packed ice and dust that many scientists consider the best-preserved remnants of the early solar system.

The Wallops Flight Facility (WFF), Wallops Island, Virginia, conducted four sounding rocket launches, beginning March 24 through April 5. The missions, launched by the US Navy at the White Sands Missile Range (WSMR) in New Mexico, carried payloads that observed the comet in the ultraviolet wavelengths of light for about five minutes before returning to Earth.

The joint NASA/European Space Agency Ulysses spacecraft, now in solar orbit, is studying what happens to comets as they are exposed to different solar wind conditions at various solar latitudes. Because Hale-Bopp was to enter the Sun's lower latitude zone, where solar wind (a continuous outflow of charged particles streaming from the Sun in all directions at a million miles per hour) is disturbed compared with the equatorial regions, dramatic changes in the comet's plasma tail were expected to occur at these lower celestial latitudes.

Ulysses Comet Watch, a collaboration between the Jet Propulsion Laboratory (JPL) in California and the University of Colorado, provided images from more than 200 amateur observers around the world. These images are posted World Wide Web homepage at:

http://lasp.colorado.edu/ucw/hb/hb_images.html

The Hubble Space Telescope, which has been observing the comet, particularly the nucleus, since September 1995, will not

observe Hale-Bopp during the next few months because the comet is too close to the Sun; Hubble's sensitive detectors could be damaged if pointed in that direction.

The Polar spacecraft observed Hale-Bopp using ultraviolet and visible imaging instruments. Images obtained by Polar are also posted to the Web at:

<http://pao.gsfc.nasa.gov/gsfsc/spacesci/pictures/spacepic.html>

Scientists have been using the Infrared Telescope Facility on Mauna Kea in Hawaii to observe Hale-Bopp in the infrared region of the spectrum. Their observations will be made through Hale-Bopp's perihelion and continue until summer. NASA will also fly the Southwest Ultraviolet Imaging System experiment on the Space Shuttle Discovery's STS-85 mission in July. The experiment is designed to observe the comet more extensively during the 11-day mission. Additionally, NASA and the National Science Foundation are collaborating on ground-based observations and analyses of Hale-Bopp.

JPL hosted a public event called "Comet Chasers: On the Trail of a Comet" on Friday, April 11. Activities included a comet viewing session and a round-table discussion of the study of comets and NASA's role in comet studies, featuring David Levy, co-discoverer of Comet Shoemaker-Levy 9, Don Yeomans of JPL, and Alan Hale and Thomas Bopp, co-discoverers of Comet Hale-Bopp.

Astronomers from around the world have submitted more than 4,500 images of Comet Hale-Bopp to NASA Web sites, where you can see them and enjoy the celestial show. Access the Comet Hale-Bopp homepage at JPL or the Near-Live Comet Watching System at NASA Headquarters at, respectively:

<http://www.jpl.nasa.gov/comet/index.html>

Excerpted from a NASA press release, written by Diane Ainsworth/Jane Platt JPL, and from NASA press release 197-4, written by Brian Dunbar, NASA Headquarters. Please note that photos may be copyrighted.